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10 Daniel Canan
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13 Inventor: Lee Macklin
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15 SYSTEM AND PROGRAM PRODUCT FOR MANAGING CALL
16 INFORMATION
17

18 FIELD OF THE INVENTION

19 The present invention is related to systems and methods for
20 recording, storing and managing voice messages. Other fields of the invention
21 are caller identification systems, phone answering systems, voice message
22 display screens, and voice message system user interfaces.

23
24 BACKGROUND OF THE INVENTION

25 Phone message systems have found widespread popularity and
26 use. Generally, such systems provide a means for answering a phone call, with
27 the caller able to leave a voice message for later retrieval and listening. Such
28 systems are generally known, with a variety of mechanisms available for the
29 recording of the message. By way of example, tape or other magnetic media
30 may be used, in which case messages are recorded in succession as they occur.
31 Some systems may "mark" or otherwise "flag" individual messages for
32 organization purposes, so that upon playback a user may selectively navigate
33 through the messages without having to listen to each message in succession.

34 In addition to phone message systems, caller identification
35 systems are widespread. Generally, these systems allow a user to view on a
36 display the identity of the originator of an incoming call. A history of
37 incoming calls may be stored and viewed on the display, so that for instance a

1 user can view the identities of incoming callers for the previous plurality of
2 calls. In addition to the caller identity, a caller identification system may also
3 store a time that the call was received. This may be of use, for instance, in
4 viewing a history of incoming calls to determine when a particular call was
5 received.

6 Caller identification and phone message systems as they are
7 known have numerous problems associated with them. As an example, caller
8 identification systems may not provide for messages. That is, caller
9 identification systems as they are known may generally provide only a time of
10 call made and an identity of the call originator. Phone message systems do of
11 course provide messaging capabilities, but they lack caller identification
12 features. Presumably the benefits of both systems could be enjoyed by
13 employing both systems, but this would require purchase, installation, set-up,
14 and maintenance of two separate systems. Additionally, use of the two systems
15 could be cumbersome in that no cross referencing of calls between the two
16 systems would be provided.

17 By way of additional example, many phone messaging systems
18 are disadvantageous in that a history of calls received is not available without
19 listening to each message received. Additionally, phone message systems by
20 and large only provide recorded audio information. No information regarding
21 the identity of a caller is provided unless the caller has chosen to indicate in the
22 recorded message identity information. While caller identification systems of
23 course provide these capabilities, use of two separate systems is
24 disadvantageous for the reasons discussed above. Also, systems may not
25 provide the ability to listen to messages except in succession as recorded. By
26 way of example, if seven messages have been recorded, it may be impossible to
27 listen to the seventh message without listening to, or at least queuing past, the
28 first six messages. This can result in unwanted delay and effort.

29 These and other problems remain unresolved in the art.

30

SUMMARY OF THE INVENTION

2 The present invention is directed to a system, method, and
3 program product for managing communications information. An embodiment
4 of a system of the invention generally comprises a recorder for recording a
5 message from an incoming communication, a processor for identifying the
6 origination data for an incoming communications, and a display for displaying
7 a plurality of communications records, with each record comprising
8 communications origination identity information and an indication of whether a
9 recorded message exists for the communication. The system further comprises
10 a selector for selecting one of the records from the display, with the message
11 from the selected record then being replayed from the recorder. Displayed
12 records can be selected regardless of sequence.

13 Preferably, the display of the system comprises a touch screen
14 display and the selector comprises a detector for detecting which portion of the
15 screen is being touched. A record displayed on that touched portion of the
16 screen will thereby be selected. Also, the display preferably comprises a scroll
17 control for scrolling through the records.

18 An embodiment of a method of the invention comprises the steps
19 of receiving a plurality of incoming communications, determining
20 communications origination identity data for each of the communications,
21 recording a message for at least one of the communications, and displaying a
22 communications record for a plurality of the communications on a display.
23 The records displayed may comprise identity data and an indication of whether
24 a recorded message is available for the communication. The method further
25 comprises the step of responding to the selection of any of the records from the
26 display by playing the recorded message associated with the record.

27 Preferably, the system and method of the invention are practiced
28 with a telephone system wherein communications comprise telephone calls.

Those knowledgeable in the art will appreciate that the present invention lends itself well to practice in the form of a computer program product. Accordingly, additional embodiments of the present invention are

1 computer program products comprising a computer usable medium having
2 computer readable program code embodied in the medium that when executed
3 causes a system to execute the steps of the method of the invention.

4 Those knowledgeable in the art will also realize that the present
5 invention in any of its various embodiments solves many otherwise unresolved
6 problems in the art. For example, embodiments of the system and method of
7 the invention when practiced with telephone systems allow a user to determine
8 how many calls have been missed, who the missed calls have been from, and
9 whether a message has been recorded. Additionally, the user can select any of
10 the missed calls having a message associated with it for message playback,
11 regardless of the sequence of call reception.

12 The above brief description sets forth broadly some of the more
13 important features and advantages of the present disclosure so that the detailed
14 description that follows may be better understood, and so that the present
15 contributions to the art may be better appreciated. There are, of course,
16 additional features of the disclosure that will be described herein. In this
17 respect, before explaining embodiments of the disclosure in detail, it is to be
18 understood that the disclosure is not limited in its application to the details of
19 the construction set forth in the following description or illustrated in the
20 drawings. The present invention may provide additional embodiments, as will
21 be appreciated by those knowledgeable in the art. Also, it is to be understood
22 that the phraseology and terminology employed herein are for description and
23 not limitation.

24

25 BRIEF DESCRIPTION OF THE FIGURES

26 FIG. 1(a)-1(b) is a flowchart illustrating an embodiment of a
27 method and a program product of the invention.

28 FIG. 2 is a schematic of an embodiment of a system of the
29 invention.

30 FIG. 3 illustrates a display useful in practice of an embodiment of
31 the invention.

1

2 DETALED DESCRIPTION

3 It will be appreciated that the present invention will be of utility
4 when practiced in an embodiment that may comprise a method, a system,
5 and/or a computer program product. Further, it will be appreciated that various
6 embodiments of the method of the invention may be closely related to one
7 another. For example, a computer program product embodiment may comprise
8 program instructions for causing a system embodiment of the invention to carry
9 out the steps of a method embodiment of the invention. For convenience, then,
10 a method embodiment and a system embodiment of the invention will be
11 discussed and described herein generally simultaneously.

12 Also, it will be appreciated that preferred embodiments of
13 systems and methods of the invention are practiced with telephone systems
14 wherein communications comprise telephone calls. It will be appreciated,
15 however, that the present invention is not limited to practice with telephone
16 systems, but may likewise be of utility when practiced with a wide variety of
17 communications mediums. By way of example, other invention embodiments
18 may be practiced with video based, text based, audio/video based, and the like
19 communications media. In considering the preferred telephone call
20 embodiments discussed and illustrated herein, then, it will be appreciated that
21 various telephone related elements of the embodiments could easily be replaced
22 with similar functional elements for practice of other communications media
23 based embodiments. By way of example, a telephone communications device
24 could easily be replaced by a communications device comprising an
25 audio/video device.

26 Reference is thereby drawn to FIGS. 1 and 2. FIG. 1 is a
27 flowchart illustrating steps of an embodiment of a method of the invention,
28 while FIG. 2 is a schematic of a system of the invention. The method
29 embodiment of FIG. 1(a) begins by receiving an incoming communications,
30 which preferably comprises a telephone call. The incoming call may originate
31 from a communications device such as phone 102 of FIG. 2 for delivery over a

1 communications network such as the PSTN (public switched telephone
2 network) 104 destined for a second communications device such as the phone
3 106. The system 108 of FIG. 2 comprises a first 110 and a second 112
4 communications port for connection to a communications line such as the
5 PSTN 104 phone line and to the phone 102, respectively. In this manner the
6 system 108 is operably connected to the phone line for receiving incoming
7 calls.

8 Referring once again to FIG. 1(a), the method embodiment
9 proceeds to determine the origination identity information for the incoming call
10 (block 4) and to determine the time of call receipt (block 6). These steps are
11 preferably accomplished using a processor 114. The term "processor" as used
12 herein is intended to broadly refer to a device for executing instructions, with
13 preferred examples comprising commercially available processors such as
14 embedded circuitry chips, printed circuit cards, and the like.

15 As used herein, the term "origination identity data" is intended to
16 broadly refer to data regarding the identity of the originator of a
17 communication. By way of example, identity data may comprise the name of a
18 person or identity; as well as a telephone number, post address, network
19 address, psuedo-name, and the like for the originator. Steps for determining
20 the origination identity data of an incoming communications are generally
21 known in the art. Broadly, these steps may comprise receiving
22 communications identification data coincident with reception of the
23 communications and recognizing the identity data. The identity data may be
24 provided in a particular format, with a code or identifier, or the like to signal
25 that identity data is available. Further, security or other access mechanisms
26 may exist that may need to be satisfied to access the data.

27 Referring to telephone communications by way of example,
28 methods for determining origination data are well known. These systems and
29 methods are generally referenced as "caller ID". The receiver of a call may
30 have to subscribe to a particular carrier "caller ID" service to have access to the
31 call identity data, which is generally provided by the local exchange carrier or

1 switch. For more detailed information regarding methods and systems for
2 determining caller identity information, reference is made to U.S. Patent No.
3 4,582,956 issued to Doughty, and incorporated herein by reference.

4 The method embodiment of FIG. 1 then proceeds to create a call
5 record (block 8), with the call record comprising a time of receipt of the call
6 and caller identity data. Preferably, this method step is performed by the
7 processor 114. The method embodiment continues to a step of determining
8 whether the caller desires to leave a message (block 10). This step may be
9 accomplished by the processor 114 issuing an audio prompt or the like. If a
10 message is to be left, the method proceeds to record the message (block 12)
11 with a recorder 116. As will be appreciated by those knowledgeable in the art,
12 the recorder 116 may comprise any of a wide variety of components that are
13 generally known in the art and commercially available. Examples comprise,
14 but are not limited to, digital recorders, analog recorders, and the like. The
15 recorder 116 may of course comprise a memory resource for storing recorded
16 messages. Also, it is noted that the present invention is not limited to practice
17 with audio messages. Other invention embodiments comprise recording of
18 video, text, audio/video, and the like messages.

19 If a message has been left, the method of the invention proceeds
20 to add an indicator to the call record that a message exists for that call (block
21 14). The term "indicator" as used herein is intended to broadly refer to data
22 useful for marking the record. By way of example, an "indicator" as used
23 herein may comprise a logical flag such as a character or character string.

24 The method of the invention proceeds to display the call record
25 (block 16) using a display 118. FIG. 3 illustrates an embodiment of a display
26 300 useful for practice with system and method embodiments of the invention.
27 Preferably, each record is displayed as a row having a plurality of individual
28 fields. The fields may be viewed as columns across the rows. A time received
29 field 302 comprises a column for displaying the time that the subject phone call
30 from each record was received. A caller identity field 304 comprises a column
31 for displaying the caller identity data for each record, and a message indicator

1 field 306 comprises a column for displaying the message indicator for each
2 record.

3 By way of further example, a call record 308 is displayed as a
4 row with time received data in the column 302 indicating that the call was
5 received at 12:23 PM, caller identity data in the column 304 indicating that the
6 call originated from Jerry Jones, and message indicator data of column 306
7 indicating that a recorded message is present on the recorder 116 for this call.
8 In the example display of FIG. 3, message indicators comprise a black
9 rectangle, with the lack of such an indicator in the message indicator column
10 306 suggesting that no recorded message is available for a particular record, as
11 is illustrated for example in record 310.

12 Preferably, a plurality of records is displayed on the display 300.
13 In the display 300 embodiment, eight records are being displayed. Preferably,
14 the display further comprises a scroll control 312 for causing the display to
15 show additional records. Accordingly, the display 300 may further comprise a
16 memory or the like for storing records not currently displayed. A system of the
17 invention also preferably comprises a selector for selecting one of the records.
18 Preferably, the display 300 comprises a touch screen, and the selector
19 comprises a detector for detecting which portion of the touch screen is being
20 touched. A record displayed on that portion of the screen will then be selected.

21 As used herein the term "touch screen" is intended to broadly
22 refer to a screen for displaying data that allows for interaction through physical
23 contact with the screen. Those knowledgeable in the art will appreciate that
24 touch screens are generally known in the art and are readily commercially
25 available. Generally, these screens use electrical, sound, or light generating
26 and detecting means to determine which portion of a screen is being touched.
27 The screen may be organized into vertical and horizontal divisions such as X
28 and Y coordinates. Data displayed on the screen can be associated with the X
29 and Y coordinates of the touch screen. Touching of the screen may be
30 accomplished using a finger, a stylus, a pen, or the like.

1 Other selectors may of course be comprised in the practice of the
2 invention. By way of example, the scroll control 312 could comprise a selector
3 function whereby the scroll control could be used to highlight any desired
4 record with a select control available to choose a highlighted record.
5 Additional examples may comprise use of voice recognition and activation
6 tools, keyboard and/or mouse based controls, a keypad control from the phone
7 106 for scrolling and selecting records, or the like.

8 The method embodiment of FIG. 1 accommodates scrolling and
9 selection of records through first recognizing an interrupt from the display
10 (block 18). As used herein, the term "interrupt" is intended to refer to a signal
11 generated as the result of an event. By way of example, manipulation of the
12 scroll control may comprise an event that will generate an interrupt signal. If
13 an interrupt is received, the method embodiment determines whether the
14 interrupt is a scroll control (block 22). If so, records are advanced in the
15 desired direction (e.g., either moving upwards or downwards) (block 24).
16 After scrolling is completed, the method continues with receiving calls (block
17 25).

18 The interrupt may also be queried to determine if it is the result of
19 a selection action (block 26), which may for instance comprise the touching of
20 a particular portion of the screen. If the interrupt is a selection action, the
21 selected record may have its full record displayed (block 28), and also may
22 have a recorded audio message associated with the recorded message played
23 back (block 30) from the recorder 116. The method step illustrated by block 28
24 may comprise for example displaying additional information not displayed in
25 the fields of the standard display as illustrated in FIG. 3. Additional
26 information may comprise by way of example and not limitation, a complete
27 name, address, and phone number of the caller, a call duration time, and the
28 like.

29 Importantly, both the method and system of the invention allow
30 for selection of any displayed record by the display selector. That is, the
31 selector may choose any record to have a corresponding recorded message

1 played back regardless of the sequence of call reception or display of records.
2 With reference to FIG. 3 by way of example, a user could select the record 308
3 for message playback without having to playback the message from any other
4 record, including the previously received record 314.

5 Following processing of a selector interrupt, the method
6 embodiment of FIG. 1 returns to steps of receiving incoming calls (blocks 32,
7 34). As will be appreciated in consideration of FIG. 1, this embodiment of the
8 method of the invention generally comprises receiving a plurality of calls, with
9 records created for each individual call and displayed as they occur. There is
10 no practical limit for the number of calls that may be received within the
11 system and method of the invention save for memory capacity for storing
12 records. Those knowledgeable in the art will appreciate that memory resources
13 required for the data in each record is low, and that memory resources are
14 generally available as low cost commodity components. With these
15 considerations in mind, record storage capacity of the method and system
16 embodiments is very high.

17 Those knowledgeable in the art will also appreciate that the
18 present invention will find utility when practiced in the form of a computer
19 program product. Accordingly, additional embodiments of the invention
20 comprise computer program products for causing processor based systems to
21 take certain actions. In particular, a computer program product of the invention
22 comprises computer executable instructions embedded in a computer readable
23 medium for execution by a computer to cause the computer to perform various
24 actions. The term "computer" as used herein is intended to broadly refer to
25 processor based devices, and may comprise, by way of example, the system for
26 managing call data as illustrated in FIG. 2.

27 Computer readable mediums for storing the program product
28 instructions may comprise any of a wide variety of mediums that are generally
29 known in the art. Examples include, but are not limited to optical media such
30 as disks and the like, magnetic media such as disks and the like, circuitry,
31 embedded circuitry, and the like. By way of example, computer program

1 product embodiment instructions may be stored in a memory that is contained
2 within the recorder 116 of the system embodiment 108 of FIG. 2, within the
3 processor 114, and/or within the display 118. The computer readable
4 instructions may comprise computer code written in a language such as C++,
5 Java, or the like that is compiled into a machine-readable format.

6 It will be also be understood that computer program product
7 embodiments of the invention generally comprise processor executable
8 instructions that when executed cause a system to perform a method of the
9 invention. By way of example, a program product of the invention may be
10 executed by the processor 114 to cause the system 108 of FIG. 2 to perform the
11 steps of a method embodiment of the invention as illustrated in the flowchart of
12 FIG. 1. Accordingly, it will be appreciated that the invention embodiment
13 illustrated in FIG. 1 and discussed herein is intended to illustrate a computer
14 program product of the invention as well as a method embodiment.

15 It will also be appreciated that the system, method, and program
16 product embodiments as illustrated in the attached FIGS. and as discussed
17 herein are not limited to particular elements or sequences as described. Indeed,
18 those knowledgeable in the art will appreciate that changes may be made to the
19 embodiments without escaping the scope or spirit of the invention. By way of
20 example, it will be appreciated that the method and program product
21 embodiment as illustrated in FIG. 1 could easily be altered in sequence without
22 changing the scope of the invention. Further, those knowledgeable in the art
23 will realize that there are a variety of particular steps and that may be
24 substituted for those illustrated and that while different than those shown are
25 functionally equivalent and thereby are within the scope of the present
26 invention.

27 Also, it will be appreciated that a system embodiment of the
28 invention may comprise a recorder for recording messages remote from the
29 display and/or processor. A system embodiment of the invention, for instance,
30 may use a voice mail system that records messages with a centralized recorder
31 that is remote from the phone 106. Additionally, embodiments of the invention

1 may comprise processors and/or program instructions that are remote from the
2 phone 106. A processor, recorder, and/or program instructions may for
3 instance be connected to the PSTN 104, with only a display located with the
4 phone 106. Further, a system embodiment of the invention may comprise a
5 display, recorder, and/or processor that is provided integrally with a phone set.
6 A computer connected to a phone line used to execute a program product of the
7 invention would of course likewise comprise a system of the invention.

8 The present invention thereby solves many of the otherwise
9 unresolved problems in the art in an elegant and novel manner. For example, a
10 display conveniently shows a log of received calls, with an indication of who
11 called, what time a call was received, and whether or not a message was left.
12 Additionally, any received call may be selected from the display using a
13 selector for replay of a message, regardless of the sequence of call reception or
14 display.

15 The advantages of the disclosed invention are thus attained in an
16 economical, practical, and facile manner. While preferred embodiments and
17 example configurations have been shown and described, it is to be understood
18 that various further modifications and additional configurations will be
19 apparent to those skilled in the art. It is intended that the specific embodiments
20 and configurations herein disclosed are illustrative of the preferred and best
21 modes for practicing the invention, and should not be interpreted as limitations
22 on the scope of the invention as defined by the appended claims.

23